Southern Nuclear Company

Operations Training
JPM

FINAL

CR/SIM 1 RO ONLY

Title: **START A RECIRC ADJUSTABLE SPEED DRIVE (ASD) FROM THE CONTROL ROOM**		
Author: **Anthony Ball**	**Media Number:** 2013-301 SIM 1	**Time** 30 Minutes
Reviewed By **N/A**		**Date** **N/A**
Reviewed by Instructional Technologist or designee **N/A**		**Date** **N/A**
Approved By **C. M. EDMUND**		**Date** **08/16/2013**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	2013-301 SIM 1

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
16	02/22/02	Include initial Operator statement	RAB	RAB
17	05/03/02	Revise Simulator Setup	DNM	DHG
18	03/01/05	Deleted "S" from procedure numbers, changed Revision and Rev. numbers to "Current Version," changed "Reactor Operator" to "Nuclear Plant Operator," changed IC 121 to IC 127 for Simulator Setup, added new prompts, changed location of some steps and prompts.	BEB	DHG
19	05/27/05	Revised Initial License statement for successful completion	RAB	RAB
20	03/30/06	Remove Response Cues	RAB	RAB
21	01/06/09	This revision is meant for initial training prior to implementation of ASDs on U2 during the 2009 U2 outage. It is the intent of Training & Operations to perform the best training possible gathering feedback from Operators during the process & feeding this information back to Operations prior to implementation to improve procedures prior to final implementation. (Note: originally a new JPM 04.20 was written, however this JPM was revised to modify the task and TO for the equipment and JPM 04.20 not retained). Section for Unit One will be "simulate" in Main Control Room due to modification on simulator to reflect changes to Unit 2.	DNM CEB	RAB
22	4-19-11	Revise JPM to reflect Unit 1 modification completion to remove the Recirc MG sets and associated equipment and their replacement with the Recirc ASD system. Revised Unit 2 jpm to match actual procedure steps.	SDH	DNM
23	08/16/13	Revised to match procedure and retitled JPM to 2013-301 CR-SIM 1 for use on ILT-8 NRC Exam. Once NRC Exam is complete will return to original title.	ARB	CME

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**Start A Recirc Adjustable Speed Drive (ASD) From THE CONTROL ROOM**
JPM NUMBER:	**2013-301 SIM 1**
TASK STANDARD:	The task shall be completed when the Recirculation Motor Adjustable Speed Drive (ASD) has been started and Reactor Recirc Pump is operating at minimum speed, per 34SO-B31-001.
TASK NUMBER:	004.002
OBJECTIVE NUMBER:	004.002.A, 004.002.E

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.50

SRO 3.22

K/A CATALOG NUMBER: 202001A401

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.30

SRO 3.10

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	Unit 1	Unit 2
		34SO-B31-001-2 (current version) 34AB-B31-001-2 (current version)

REQUIRED MATERIALS:	Unit 1	Unit 2
		34SO-B31-001-2 & Attachment 5 (current version)

APPROXIMATE COMPLETION TIME: **30** Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions: This JPM can only be utilized for a "perform" for Unit 2.

1. **RESET** the Simulator to **IC #102** and leave in **FREEZE or to SNAP 611.**

2. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Raise RWL to >47 inches as indicated on GEMAC.
   B. Use rfB31_29 and open Seal purge valve B31-F016A.
   C. **OPEN 2B31-F031A for 10 seconds.**

3. TURN SPDS Screens OFF.

4. **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

5. **ESTIMATED** Simulator **SETUP TIME:** **5 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. The 2A Reactor Recirc Pump is ready to be started per 34SO-B31-001-2.
2. The 2A ASD Cooling Water System has has been running normally for greater than 2 hours.
3. All required system/seal venting & purging has been completed.
4. SPDS is out of service.

INITIATING CUES:

Start 2A Recirc Pump, using the normal startup section of 34SO-B31-001-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator reviews the procedure's precautions and limitations.	Operator has reviewed the precautions and limitations.	
2.	Confirm closed the following RPT breakers: (step 7.1.2.1.1) • 2C71-CB3A • 2C71-CB4A	At panel 2H11-P602, Operator has confirmed RPT breakers 2C71-CB3A & CB4A CLOSED, red lights illuminated.	
****3.**	Depress the ASD A Fault Reset pushbutton to reset all ASD/Recirc annunciators whose conditions have cleared. (step 7.1.2.1.2)	At panel 2H11-P602, all ASD/Recirc annunciators have cleared.	

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator that the ASD Cooling Water System has been in service for a minimum of two hours per Section 7.1.1.1, Startup Of The ASD A Cooling System. (step 7.1.2.1.6)

PROMPT: **WHEN** the Operator addresses Cooling Water Conductivity, **INFORM** the Operator, locally at ASD A Cooling Cabinet 2B31-S002AG that cooling system conductivity is <1 µS. (step 7.1.2.1.7.1)

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: **WHEN** the Operator addresses which NXG Computer is in control, **INFORM** the Operator, the B NXG Computer is in control. (7.1.2.1.7.3)

4.	Confirm ASD A COOLING NORMAL indicating lamp is illuminated, 2H11-P602. (step 7.1.2.1.8)	At panel 2H11-P602, ASD A COOLING NORMAL light is illuminated..	

PROMPT: **WHEN** the Operator addresses Bypassed Cells, **INFORM** the Operator there are NO Bypassed Cells. (step 7.1.2.1.9)

5.	Confirm open OR open 2B31-F023A, Pump Suction Valve (step 7.1.2.1.11)	At panel 2H11-P602, PUMP SUCTION VLV, 2B31-F023A is OPEN, red light ONLY illuminated.	
6.	Confirm running OR start 2T41-B012, ASD "A" Room Cooler, at 2H11-P657. (step 7.1.2.1.12)	At panel 2H11-P657, CONFIRMS running OR starts 2T42-B012, ASD "A" Room Cooler red light illuminated.	

PROMPT: **WHEN** the Operator addresses ASD Room Cooler 2T41-B012, as the RO, **INFORM** the Operator that 2T41-B012 is operating.

****7.**	Confirm closed OR close 2B31-F031A, Pump Discharge Valve. (step 7.1.2.1.13)	At panel 2H11-P602, PUMP DISCH VLV 2B31-F031A is CLOSED, green light ONLY illuminated.	
8.	Depress the ASD A Shutdown pushbutton, to reset the Run Request logic. (step 7.1.2.1.14)	At panel 2H11-P602, Depresses the ASD A Shutdown pushbutton.	
****9.**	Position the ASD A control switch, 2B31-S002A to START. (step 7.1.2.1.15)	At panel 2H11-P602, ASD STARTED, red light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
10.	Confirm the following: The ASD A PRE-CHARGING light illuminates. (step 7.1.2.1.16.1) After ~30 seconds, the ASD A PRE-CHARGING light extinguishes. (step 7.1.2.1.16.2) The ASD A Input Breaker CLOSES (the red light above the ASD A control switch illuminates and the green light extinguishes). (step 7.1.2.1.16.3) The ASD A START pushbutton light illuminates. (step 7.1.2.1.16.4) RECIRC A FLOW LIMIT, (602-134)	At panel 2H11-P602, the Operator VERIFIES: The ASD A PRE-CHARGING light illuminates. After ~30 seconds, the ASD A PRE-CHARGING light extinguishes. The ASD A Input Breaker CLOSES (the red light above the ASD A control switch illuminates and the green light extinguishes). The ASD A START pushbutton light illuminates. Acknowledges 602-134 alarm.	

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator that a CRD Pump is in service to supply Seal Purge Flow. (step 7.1.3.1.2)

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator that Seal Purge Isolation Valve 2B31-F016A is open. (step 7.1.3.1.3)

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator it is not required to vent the Recirc pump seals. (step 7.1.3.1.4)

11.	Confirm open OR open 2B31-F023A, Pump Suction Valve. (step 7.1.3.1.6)	At panel 2H11-P602, PUMP SUCTION VLV, 2B31-F023A is OPEN, red light ONLY illuminated.	

PROMPT: **WHEN** the Operator addresses the Seal Flow Regulator, as the SO, **INFORM** the Operator that it is set at 2 gpm. (step 7.1.3.1.7)

PROMPT: **WHEN** the Operator addresses the status of the other recirc loop, as the SS, **INFORM** the Operator that the other loop is in operation. (step 7.1.3.1.9)

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
12.	Confirm reactor water level is > +32 inches, panel 2H11-P603. (step 7.1.3.1.10)	At panel 2H11-P603, the Operator VERIFIES that RWL is greater than +32 inches.	
13.	Operator completes required portions of Attachment 5 of procedure. (step 7.1.3.1.11)	Attachment 5 has been completed through step 7.1.	

PROMPT: **INFORM** the operator that another operator has completed the applicable portions of Attachment 5 and are acceptable, 2 minutes ago.

14.	Confirm CLOSED 2B31-F031A, Pump Discharge Valve. (step 7.1.3.1.12)	At panel 2H11-P602, PUMP DISCH VLV 2B31-F031A is CLOSED, green light ONLY illuminated.	
15.	CONFIRM ASD A START pushbutton indicating light is illuminated. (step 7.1.3.1.13)	At panel 2H11-P602, CONFIRM ASD A START pushbutton indicating light is illuminated.	

PROMPT: **WHEN** the Operator addresses the status of the recirc loop startup temperatures, as the RO, **INFORM** the Operator that the temperatures are still acceptable. (step 7.1.3.1.14)

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**16.	Just prior to pump start, visually (reference Special Requirement 4.3.6) confirm the Pump Startup Temperature limits are still acceptable, THEN depress the ASD A START pushbutton indicating lamp AND (step 7.1.3.1.14)	At panel 2H11-P602, ASD A START PUSH BUTTON, is depressed.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
17.	Confirm the following: The ASD A STARTING indicating lamp illuminates. (step 7.1.3.1.14.1) The ASD A START pushbutton indicating lamp extinguishes (step 7.1.3.1.14.2) 2B31-F031A, Recirc Pump A Disch Vlv, starts to JOG OPEN 2 seconds after the ASD A STARTING light illuminates. (step 7.1.3.1.14.3) The ASD A speed increases to ~370 RPM on 2B31-R660A and ~22% on 2B31-R661A in about 4 seconds. (step 7.1.3.1.14.4) The ASD A RUNNING indicating lamp illuminates (step 7.1.3.1.14.5) The ASD A STARTING indicating light extinguishes. (step 7.1.3.1.14.6) 2B31-F031A, Recirc Pump A Disch Vlv, is FULL OPEN <96 seconds after the Recirc ASD A STARTING light illuminates. (step 7.1.3.1.14.7) Recirc A Flow, indicates 11,000 - 13,000 gpm on 2B31-R617, Drive Flow. (step 7.1.3.1.14.8)	At panel 2H11-P602, the Operator VERIFIES: The ASD A STARTING light illuminates. The ASD A START pushbutton light extinguishes. 2B31-F031A, Recirc Pump A Disch Vlv, starts to JOG OPEN 2 seconds after the ASD A STARTING light illuminates The ASD A speed increases to ~370 RPM on 2B31-R660A and ~22% on 2B31-R661A in about 4 seconds. The ASD A RUNNING light illuminates. The ASD A STARTING indicating light extinguishes. Recirc A Flow, indicates 11,000 - 13,000 GPM on 2B31-R617. 2B31-F031A, Recirc Pump A Disch Vlv, is FULL OPEN <96 seconds after the Recirc ASD A STARTING light illuminates.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
18.	Complete remainder of Attachment 5. (step 7.1.3.1.15)	Attachment 5 has been completed through Step 7.4.	

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator that the remaining portions of Attachment 5 have been completed.

19.	Confirm 2B31-R603A, No. 1 Seal A pressure indicator, is WITHIN 50 psig of reactor pressure. (step 7.1.3.1.16)	At panel 2H11-P602, the Operator has VERIFIED that Pump 2A No. 1 Seal pressure on 2B31-R603A is within 50 psig of Reactor pressure.	
20.	Confirm 2B31-R602A, No. 2 Seal A pressure indicator, is WITHIN 50 psig of one half of reactor pressure. (step 7.1.3.1.17)	At panel 2H11-P602, the Operator VERIFIES that Pump 2A No. 2 Seal pressure on 2B31-R602A is within 50 psig of one half of Reactor pressure.	

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator the STA will perform applicable sections of 34SV-SUV-023-2 (step 7.1.3.1.18)

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator the Single Loop Operation was never enabled for the APRMs. (step 7.1.3.1.20)

PROMPT: **IF** addressed by the Operator, **INFORM** the Operator the STA will evaluate core conditions per 34SV-SUV-020-0, AND verify Recirc Loop Active/Inactive status on the process computer. (step 7.1.3.1.21)

END TIME: _____

NOTE: The terminating cue shall be given to the Operator when:

- After JPM step #20 is complete.
- With NO reasonable progress, the Operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

FINAL

CR/SIM 2 ALL

Title PERFORM A MANUAL STARTUP OF THE CORE SPRAY SYSTEM WITH 1ST VALVE FAILURE		
Author: Anthony Ball	Media Number: 2013-301 SIM 2	Time 8.0 Minutes
Reviewed By N/A		Date N/A
Reviewed by Instructional Technologist or designeed. N/A		Date N/A
Approved By C. M. EDMUND		Date 08/16/2013

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	2013-301 SIM 2

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	08/16/13	This JPM was created from LR-JP-08.02 for ILT-8 NRC Exam. Modified JPM with failure of the 1st CS valve attempted to open. After this exam will be changed to a new LR JPM number.	ARB	CME

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**PERFORM A MANUAL STARTUP OF THE CORE SPRAY SYSTEM WITH 1ST VALVE FAILURE**
JPM NUMBER:	**2013-301 SIM 2**
TASK STANDARD:	The task shall be completed when the operator has started the second loop of the Core Spray System manually and the system is aligned for injection to the Reactor with loop flow greater than 950 gpm per 34SO-E21-001-2.
TASK NUMBER:	008.002
OBJECTIVE NUMBER:	008.002.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.80

SRO 3.42

K/A CATALOG NUMBER: 209001A405

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.80

SRO 3.60

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 2**
	34SO-E21-001-2 (current version) 31EO-EOP-010-2 (current version)

REQUIRED MATERIALS:	**Unit 2**
	34SO-E21-001-2 (current version)

APPROXIMATE COMPLETION TIME: 8.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **75% RTP OR SNAP 612** and leave in **FREEZE.**

2. **INSERT** the following **MALFUNCTIONS:**

MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME
mfB21_123A	Steam Line Break in the Drywell			00000
mfE21_202A	Core Spray LOCA Signal Failure			00000
mfE11_202B	RHR LOCA Signal Failure			00000
mfN21_79A	Condensate Pump A Trip			00000
mfN21_79B	Condensate Pump B Trip			00000
mfN21_79C	Condensate Pump C Trip			00000
mfE41_104	HPCI Turbine Trip			00000
mfE51_110	RCIC Turbine Trip			00000

ACTIVATE THE FOLLOWING EVENT TRIGGERS:

Trigger #	DESCRIPTION	CONDITIONS	Expert Command
E21-7	2E21-F005B fails close, F005A works		
E21-8	2E21-F005A fails close, F005B works		

ORS OVERRIDES:

Activator	TAG #	S/M/L	DESCRIPTION	Final Value	Ramp Rate	Delay
ST-0	diE21-F005A	S	Core Spray A Inboard Disch Valve	Close		
ST-0	diE21-F005B	S	Core Spray B Inboard Disch Valve	Close		

3. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Allow to run until Reactor pressure is approximately 150 psig.
   B. Acknowledge annunciators.

4. **PLACE** the Simulator in **FREEZE** until the crew assumes the shift.

5. **ESTIMATED** Simulator **SETUP TIME:** **10 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 has had a LOCA. RWL is less than -101 inches and Reactor pressure is less than 350 psig.
2. Core Spray Logic has failed.
3. 31EO-EOP-010-2 (RC) is in progress.

INITIATING CUES:

Start Core Spray AND Inject to the reactor to maintain +3 to +50 inches RWL.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

NOTE: If the operator starts first with the "A" Loop of Core Spray, perform Steps 1 – 10.

If the operator starts first with the "B" Loop of Core Spray, perform Steps 11 – 20.

1.	Operator identifies the procedure needed to perform the task.	Operator has identified the correct procedure as 34SO-E21-001-2 or placard.	
2.	Start Core Spray Pump "2A." (placard step 1)	At panel 2H11-P601, CORE SPRAY PUMP, 2E21-C001A, is RUNNING, red light illuminated.	
3.	Confirm Core Spray Pump discharge pressure is greater than 265 psig. (placard step 2)	At panel 2H11-P601, operator VERIFIES DISCH PRESS is greater than 265 psig on indicator 2E21-R600A.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
4.	WHEN reactor pressure is less than or equal to 425 PSIG, fully open 2E21-F005A, Inbd Discharge Valve. (placard step 3)	At panel 2H11-P601, Recognizes the Core Spray Pump "2A" Discharge Valve, 2E21-F005A will NOT OPEN when Reactor pressure is less than 425 psig, green light ONLY illuminated.	

NOTE: The operator may inform the Shift Supervisor of the valve failure at this time or may continue with placing the other loop of Core Spray in service and then notify the Shift Supervisor. (EITHER is acceptable)

**5.	Start Core Spray Pump "2B." (placard step 1)	At panel 2H11-P601, CORE SPRAY PUMP, 2E21-C001B, is RUNNING, red light illuminated.	

PROMPT: **WHEN** the operator addresses discharge pressure, **INDICATE** for the operator that pump discharge pressure is greater than 265 psig.

6.	Confirm Core Spray Pump discharge pressure is greater than 265 psig. (placard step 2)	At panel 2H11-P601, operator VERIFIES DISCH PRESS is greater than 265 psig on indicator 2E21-R600B.	
**7.	WHEN reactor pressure is less than or equal to 425 PSIG, fully open 2E21-F005B, Inbd Discharge Valve. (placard step 3)	At panel 2H11-P601, INBD DISCH VLV, 2E21-F005B, is OPEN, red light illuminated.	

NOTE: If adequate core cooling exists, it is acceptable for the F005B valve to be left in mid position to prevent exceeding rated pump flow.

NOTE: Valve, 2E21-F031B, auto closes when flow exceeds 950 gpm.

8.	Confirm the Minimum Flow Valve, 2E21-F031B closes when flow is >950 gpm. (placard step 4)	At panel 2H11-P601, the operator VERIFIES when DISCH FLOW, 2E21-R601 is greater than 950 gpm, MIN FLOW VLV, 2E21-F031B is CLOSED, green light ONLY illuminated.	
9.	Throttles 2E21-F005B as necessary (placard step 5)	At panel 2H11-P601, the operator throttles 2E21-F005B to maintain RWL +3 to +50 inches.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

NOTE: The operator may delay performing the following step due to controlling RWL.

10.	Confirms a Core Spray and RHR room cooler automatically starts. (placard step 6)	At panel 2H11-P654, the operator has confirmed that a CORE SPRAY and RHR ROOM COOLER have started, red light illuminated.	

PROMPT: **IF** the operator addresses RWL, as the Shift Supervisor, **INFORM** the operator to maintain RWL between +3 to +50 inches.

PROMPT: **IF** the operator addresses shutting down the Core Spray System, as the Shift Supervisor, **INFORM** the operator that this is NOT desired at this time.

11.	Operator identifies the procedure needed to perform the task.	Operator has identified the correct procedure as 34SO-E21-001-2.	
12.	Starts Core Spray Pump "2B." (placard step 1)	At panel 2H11-P601, CORE SPRAY PUMP, 2E21-C001B, is RUNNING, red light illuminated.	

13.	Confirm Core Spray Pump discharge pressure is greater than 265 psig. (placard step 2)	At panel 2H11-P601, operator VERIFIES DISCH PRESS is greater than 265 psig on indicator 2E21-R600B.	
14.	Recognizes the Core Spray Pump "2B" Discharge Valve, 2E21-F005B will NOT OPEN when Reactor pressure is less than 425 psig. (placard step 3)	At panel 2H11-P601, INBD DISCH VLV, 2E21-F005B, is CLOSE, green light ONLY illuminated.	

NOTE: The operator may inform the Shift Supervisor of the valve failure at this time or may continue with placing the other loop of Core Spray in service and then notify the Shift Supervisor. (EITHER is acceptable)

****15.**	Starts Core Spray Pump "2A." (placard step 1)	At panel 2H11-P601, CORE SPRAY PUMP, 2E21-C001A, is RUNNING, red light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: **WHEN** the operator addresses discharge pressure, **INDICATE** for the operator that pump discharge pressure is greater than 265 psig.

16.	Confirm Core Spray Pump discharge pressure is greater than 265 psig. (placard step 2)	At panel 2H11-P601, operator VERIFIES DISCH PRESS is greater than 265 psig on indicator 2E21-R600A.	

****17.**	Opens the Core Spray Pump "2A" Discharge Valve, 2E21-F005A when Reactor pressure is less than 425 psig. (placard step 3)	At panel 2H11-P601, INBD DISCH VLV, 2E21-F005A, is OPEN, red light illuminated.	

NOTE: If adequate core cooling exists, it is acceptable for the F005A valve to be left in mid position to prevent exceeding rated pump flow.

NOTE: Valve, 2E21-F031A, auto closes when flow exceeds 950 gpm.

18.	Verify the Minimum Flow Valve, 2E21-F031A closes when flow is >950 gpm. (placard step 4)	At panel 2H11-P601, the operator VERIFIES when DISCH FLOW, 2E21-R601 is greater than 950 gpm, MIN FLOW VLV, 2E21-F031A is CLOSED, green light ONLY illuminated.	

19.	Throttles 2E21-F005A as necessary (placard step 5)	At panel 2H11-P601, the operator throttles 2E21-F005A to maintain RWL +3 to +50 inches.	

NOTE: The operator may delay performing the following step due to controlling RWL.

20.	Confirms Core Spray and RHR room cooler automatically starts. (placard step 6)	At panel 2H11-P657, the operator has confirmed that a CORE SPRAY and RHR ROOM COOLER have started, red light illuminated.	

PROMPT: **IF** the operator addresses RWL, as the Shift Supervisor, **INFORM** the operator to maintain RWL between +3 to +50 inches.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: **IF** the operator addresses shutting down the Core Spray System, as the Shift Supervisor, **INFORM** the operator that this is NOT desired at this time.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes through step 10 or through step 20.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.
- Operator is controlling RWL and slowly bringing RWL to +3 to +50 inches.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear
E. I. Hatch Nuclear Plant

Operations Training
JPM

FINAL

CR/SIM 3 RO & SRO-I

TITLE		
EMERGENCY DEPRESS THE REACTOR USING THE HEAD VENTS/DRYWELL COOLERS		
AUTHOR	**MEDIA NUMBER**	
Anthony Ball	2013-301 SIM 3	10 Minutes
RECOMMENDED BY	**APPROVED BY**	**DATE**
N/R	C. M. EDMUND	08/16/2013

SOUTHERN COMPANY

SOUTHERN NUCLEAR OPERATING COMPANY
PLANT E. I. HATCH

FORM TITLE: TRAINING MATERIAL REVISION SHEET

Program/Course Code: **OPERATIONS TRAINING** Media Number: **2013-301 SIM 3**

Rev. No.	Date	Reason for Revision	Author's Initials	Supv's Initials
00	08/05/96	Initial development	RAB	DHG
01	03/05/99	Revised due to new simulator computer.	SCB	DHG
02	03/13/00	Format modification, change time allowance based on running, modify title	RAB	DHG
03	11/06/00	Include objective number	RAB	DHG
04	03/19/02	Include initial operator statement	RAB	RAB
05	06/21/05	Revised Initial License statement for successful completion	RAB	RAB
06	05/08/06	Remove Response Cues	RAB	RAB
07	10/09/09	Revised for use on 2009-302 Exam	FNF	CME
08	08/16/13	Revised to match procedure and retitled for ILT-8 NRC Exam. Once exam is complete will retitle back to LR-JP-20198.	ARB	CME

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**EMERGENCY DEPRESS THE REACTOR USING THE HEAD VENTS/DRYWELL COOLERS**
JPM NUMBER:	2013-301 SIM 3
TASK STANDARD:	The task shall be complete when the operator has initiated the emergency depress process with the Head Vents/Drywell Coolers, per 31EO-EOP-108-2.
TASK NUMBER:	201.098
OBJECTIVE NUMBER:	201.098.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.57

SRO 3.66

K/A CATALOG NUMBER: 295025A1.01

K/A CATALOG JTA IMPORTANCE RATING:

RO 2.9

SRO 3.0

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 2**
	31EO-EOP-108-2 34SO-T47-001-2 34SO-T48-002-2

REQUIRED MATERIALS:	**Unit 2**
	31EO-EOP-108-2 34SO-T47-001-2 34SO-T48-002-2

APPROXIMATE COMPLETION TIME: 10 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **SNAP 613** OR **IC #113** and leave in **FREEZE**.

2. **INSERT** the following **MALFUNCTIONS:**

MALF #	TITLE	FINAL VALUE	DELAY TIME	ACT. TIME
mfB21_129B	Main Steam Relief Valve B Fails Stuck			00000
mfB21_129C	Main Steam Relief Valve C Fails Stuck			00000
mfB21_129D	Main Steam Relief Valve D Fails Stuck			00000
mfB21_129E	Main Steam Relief Valve E Fails Stuck			00000
mfB21_129F	Main Steam Relief Valve F Fails Stuck			00000
mfB21_129G	Main Steam Relief Valve G Fails Stuck			00000
mfB21_129H	Main Steam Relief Valve H Fails Stuck			00000
mfB21_129K	Main Steam Relief Valve K Fails Stuck			00000
mfB21_129L	Main Steam Relief Valve L Fails Stuck			00000
mfB21_129M	Main Steam Relief Valve M Fails Stuck			00000

3. **INSERT** the following **OVERRIDES (SVO) & (IO):**

SVO #	DESCRIPTION	FINAL VALUE	RAMP RATE	ACT. TIME
svoT48140	Water Level in Torus	115	100	00000
diB21-F013A	Auto Relief SRV A	AUTO		

4. **INSERT** the following **REMOTE FUNCTIONS:**

REM #	DESCRIPTION	STATUS
rfP64_330	Drywell Chillers B006A & B LOCA/LOSP Trip Links	BYPASS
rfP64_331	Drywell Chillers B006B LOCA/LOSP Trip Links	BYPASS

5. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. On 2H11-P700 place the key switch for the Drywell Chillers to Override
   B. On 2H11-P654 and P657, place keyswitchs for Drywell Fans to Override
   C. Perform RC-1, RC-2, and TC-1 and RWL to the normal band.
   D. Reset the Group 2 isolation.
   E. Prevent a further Group 2 by starting RCIC to maintain level >3" (SRV A will be cycling)
   F. Close the MSIVs
   G. Place ALL SRV switches to OPEN
   H. Place HPCI in service in Auto, injecting at 750 gpm.
      The SIMULATOR OPERATOR WILL CONTROL HPCI INJECTION TO MAINTAIN +3 TO +50 INCHES RWL.
   I. Acknowledge annunciators.

6. **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

7. **ESTIMATED** Simulator **SETUP TIME:** **20 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. A seismic event has caused a small steam leak in the drywell and an unisolable leak in the Torus.
2. Attempts to raise Torus water level have been unsuccessful.
3. 31EO-EOP-012-2 (PC) is in progress.
4. The Reactor has been shutdown.
5. The Shift Supervisor has determined that the plant cannot be maintained in the SAFE Region of the Heat Capacity Temperature Limit and decided to Emergency Depress the Reactor.
6. 31EO-EOP-015-2 (CP-1) is in progress.
7. An attempt was made to Emergency Depress with the SRVs, but they have failed to open.
8. Other methods of Alternate Emergency Depress have been unsuccessful.
9. Drywell Chillers and Fans have been placed in service per 34SO-P64-001-2 with the LOCA trips overridden.
10. The Group 2 isolation has been reset.
11. Standby Gas Treatment System is running with suction from the Reactor Building & Refueling Floor per 34SO-T46-001-2.

INITIATING CUES:

Depressurize the Reactor using the Head Vents/Drywell Coolers per 31EO-EOP-108-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Obtain the procedure needed to perform the task.	Operator obtains 31EO-EOP-108-2.	SAT / UNSAT
2.	Place all available DW Chillers and Fans in service (31EO-EOP-108-2 step 3.9.1)	Recognizes that all DW Chillers and Fans in service from initial conditions or by observing red lights illuminated on 2H11-P654 and 2H11-P657.	SAT / UNSAT
3.	Obtain the procedure needed to perform the task. (31EO-EOP-108-2 step 3.9.3)	Operator obtains 34SO-T48-002-2 or placard to vent the drywell.	SAT / UNSAT

NOTE: Only one loop is critical and needs to be vented.
Steps 4-6 are for the "A" side and steps 7-9 are for the "B" side.

NOTE: The operator may use the placard or 34SO-T48-002-2 to vent the Drywell.

****4.**	OPEN 2T48-F334A, Drywell Vent Isol Vlv. (34SO-T48-002-2 step 7.1.3.2.1.1)	At 2H11-P657, the operator places the control switch for 2T48-F334A, Drywell Vent Isol Vlv to OPEN.	SAT / UNSAT / NA

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**5.	OPEN 2T48-F335A, Drywell Vent Isol Vlv. (34SO-T48-002-2 step 7.1.3.2.1.2)	At 2H11-P657, the operator places the control switch for 2T48-F335A, Drywell Vent Isol Vlv to OPEN.	SAT / UNSAT / NA
**6.	OPEN 2T48-F336A, Drywell Vent Flow Cntl Vlv. (34SO-T48-002-2 step 7.1.3.2.1.3)	At 2H11-P657, the operator increases the controller output on 2T48-R615A, Drywell Flow Controller for F336A with demand greater than zero.	SAT / UNSAT / NA
**7.	OPEN 2T48-F334B, Drywell Vent Isol Vlv. (34SO-T48-002-2 step 7.1.3.2.2.1)	At 2H11-P654, the operator places the control switch for 2T48-F334B, Drywell Vent Isol Vlv to OPEN.	SAT / UNSAT / NA
**8.	OPEN 2T48-F335B, Drywell Vent Isol Vlv. (34SO-T48-002-2 step 7.1.3.2.2.2)	At 2H11-P654, the operator places the control switch for 2T48-F335B, Drywell Vent Isol Vlv to OPEN.	SAT / UNSAT / NA
**9.	OPEN 2T48-F336B, Drywell Vent Flow Cntl Vlv. (34SO-T48-002-2 step 7.1.3.2.2.3)	At 2H11-P654, the operator increases the controller output on 2T48-R615B, Drywell Flow Controller for F336B with demand greater than zero.	SAT / UNSAT / NA
10.	At 2H11-P602, Place the following pump control switches to PULL TO LOCK: (31EO-EOP-108-2 step 3.9.4) • D/W Equipment Drain pump 2G11-C006A • D/W Equipment Drain Pump 2G11-C006B • D/W Floor Drain Pump 2G11-C001A • D/W Floor Drain Pump 2G11-C001B	At 2H11-P602, DRYWELL SUMP CONTROLS, the operator places the following pump control switches are in PULL TO LOCK: • D/W Equipment Drain pump 2G11-C006A • D/W Equipment Drain Pump 2G11-C006B • D/W Floor Drain Pump 2G11-C001A • D/W Floor Drain Pump 2G11-C001B	SAT / UNSAT SAT / UNSAT SAT / UNSAT SAT / UNSAT

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**11.	At 2H11-P602, OPEN Reactor Head Vent valve, 2B21-F004. (31EO-EOP-108-2 step 3.9.5)	At 2H11-P602, RX HEAD VENTS, VENT VLV, 2B21-F004 is OPEN, red light ONLY illuminated.	SAT / UNSAT
**12.	At 2H11-P602, OPEN Reactor Head Vent valve, 2B21-F003. (31EO-EOP-108-2 step 3.9.5)	At 2H11-P602, RX HEAD VENTS, VENT VLV, 2B21-F003 is OPEN, red light ONLY illuminated.	SAT / UNSAT

PROMPT: **IF** system restoration is addressed by the operator, as the Shift Supervisor, **INFORM** the operator that system restoration is not desired at this time.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 12.
- With NO reasonable progress, the operator exceeds double the allotted time.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear
E. I. Hatch Nuclear Plant

Operations Training
JPM

FINAL

CR/SIM 4 RO & SRO-I

TITLE		
PERFORM A MANUAL INITIATION OF LPCI (IF IN SHUTDOWN COOLING)		
AUTHOR	**MEDIA NUMBER**	**TIME**
Anthony Ball	2013-301 SIM 4	15 Minutes
RECOMMENDED BY		
N/R	C. M. EDMUND	08/16/2013

SOUTHERN COMPANY

SOUTHERN NUCLEAR OPERATING COMPANY
PLANT E. I. HATCH

FORM TITLE: TRAINING MATERIAL REVISION SHEET

Program/Course Code: **OPERATIONS TRAINING** Media Number: **2013-301 SIM 4**

Rev. No.	Date	Reason for Revision	Author's Initials	Supv's Initials
01	08/16/13	Renumbered to 2013-301 Sim 4 for ILT-8 NRC Exam. This JPM will be renumbered after NRC Exam.	ARB	CME

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**PERFORM A MANUAL INITIATION OF LPCI (IF IN SHUTDOWN COOLING)**
JPM NUMBER:	2013-301 SIM 4
TASK STANDARD:	The task shall be completed when the RHR loop previously in the shutdown cooling mode is aligned for LPCI, with both pumps running and injecting to the Reactor at approximately 17,000 gpm, as indicated on 2E11-R603A, per 34SO-E11-010.
TASK NUMBER:	006.008
OBJECTIVE NUMBER:	006.008.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.33

SRO 3.76

K/A CATALOG NUMBER: 203000A405

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.30

SRO 4.10

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)/Senior Reactor Operator (SRO)

GENERAL REFERENCES:	**Unit 2**
	34SO-E11-010-2 (current version)

REQUIRED MATERIALS:	**Unit 2**
	34SO-E11-010-2 (current version)

APPROXIMATE COMPLETION TIME: 15 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **SNAP 614** OR **IC #102** and leave in **FREEZE.**

2. **INSERT** the following **MALFUNCTIONS:**

MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME
mfG31_242	RWCU Non-Isol Leak	5	100	99999
mfE11_115B	RHR Pump B Trip			00000
mfE11_115D	RHR Pump D Trip			00000
mfE21_202A	Core Spray LOCA Signal Failure			00000

3. **INSERT** the following **ORS OVERRIDES:**

TAG #	P/L	DESCRIPTION	STATUS	ACT. TIME
diE21-C001A	P	Core Spray Pmp 1A	STOP	00000
diE21-C001B	P	Core Spray Pmp B	STOP	00000
diE11-F007A	P	Min Flow Bypass Valve	CLOSE	00000
diE11-F028A	P	RHR A Torus Spray/Test Vlv	CLOSE	00000
diE11-F016A	P	Contmt Spray Outboard Drywell	CLOSE	00000
loE11-F007AG1	L	Min Flow Bypass Valve	OFF	00000
loE11-F007AR2	L	Min Flow Bypass Valve	OFF	00000
loE11-F028AG1	L	RHR A Torus Spray/Test Vlv	OFF	00000
loE11-F028AR2	L	RHR A Torus Spray/Test Vlv	OFF	00000
loE11-F016AG1	L	Contmt Spray Outboard Drywell	OFF	00000
loE11-F016AR2	L	Contmt Spray Outboard Drywell	OFF	00000

4. **INSERT** the following **REMOTE FUNCTIONS:**

REM #	DESCRIPTION	STATUS
rfE11_22	2E11-F015A/B Override Jumper And Links	Override

(Indicates critical step)**

5. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Place RHR Loop A into Shutdown Cooling.
   B. Activate malfunction mfG31_242 and allow to run until LOCA Signal is received.
   C. Allow Sim to run until 2E11-F048A LOCA timer times out, then place 2E11-F048A control switch to close to close valve. Once closed reposition switch to mid position.
   D. MODIFY mfG31_242 to Final 1 to limit the RWL reduction.
   E. Acknowledge annunciators.

6. **PLACE** the Simulator in **FREEZE** until the crew assumes the shift.

7. **PLACE DANGER TAGS** on the following equipment:

MPL #	COMPONENT	TAGGED POSITION
2E11-F007A	Min Flow Bypass Valve	CLOSED
2E11-F028A	Torus Spray Or Test Vlv	CLOSED
2E11-F016A	Cmt Spray Outboard Vlv	CLOSED

8. **ESTIMATED** Simulator **SETUP TIME**: **20 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 is shutdown.
2. RHR loop "2A" was in the Shutdown Cooling mode with RHR Pump "2A" in service.
3. Both Core Spray System Pumps are inoperable.
4. HPCI and RCIC are isolated on low steam supply pressure.
5. A LOCA has occurred and 31EO-EOP-010-2 (RC) is in progress.
6. RHR Pumps "2B" and "2D" are inoperable.

INITIATING CUES:

Place RHR Loop "A" in the LPCI Mode and inject to the Reactor.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For INITIAL Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator identifies the procedure needed to perform the task.	Operator has identified the correct procedure as 34SO-E11-010-2.	
2.	Confirm RHRSW pumps are tripped (step 7.4.9.2).	At panel 2H11-P601, SERVICE WATER PUMPS, 2E11-C001A/B/C/D are TRIPPED, green lights illuminated.	

NOTE: IF the RHR Pumps AUTO trip, with an Auto Initiation Signal present, the pumps Anti-Pumping Logic, will result in NO light indication for the pumps.

3.	Confirm RHR pumps are tripped (step 7.4.9.4.1).	At panel 2H11-P601, the following pumps are TRIPPED, neither green nor red lights are illuminated: RHR PUMPS, 2E11-C002A/C	
4.	Confirm/close Shutdown Cooling Suction Valve, 2E11-F008 (step 7.4.9.4.2).	At panel 2H11-P601, SDC SUCTION VLV, 2E11-F008, is CLOSED, green light ONLY illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
5.	Confirm/close Shutdown Cooling Suction Valve, 2E11-F009 (step 7.4.9.4.3).	At panel 2H11-P602, SDC SUCTION VLV, 2E11-F009, is CLOSED, green light ONLY illuminated.	
****6.**	Close Shutdown Cooling Suction Valve, 2E11-F006A (step 7.4.9.4.4).	At panel 2H11-P601, the following valve is CLOSED, green light ONLY illuminated: SHUTDOWN COOLING VLV, 2E11-F006A	
****7.**	Close Shutdown Cooling Suction Valve, 2E11-F006C (step 7.4.9.4.4).	At panel 2H11-P601, the following valve is CLOSED, green light ONLY illuminated: SHUTDOWN COOLING VLV, 2E11-F006C	
8.	Confirm/open Torus Suction Valve, 2E11-F065A (step 7.4.9.4.5).	At panel 2H11-P601, TORUS SUCTION VLV, 2E11-F065A, is OPEN, red light ONLY illuminated.	
9.	Confirm/open Torus Suction Valve, 2E11-F065C (step 7.4.9.4.5).	At panel 2H11-P601, TORUS SUCTION VLV, 2E11-F065C, is OPEN, red light ONLY illuminated.	

NOTE: Valve in Step 6 must be closed, green light ONLY, before valve in Step 10 will open.

Valve in Step 7 must be closed, green light ONLY, before valve in Step 11 will open.

****10.**	Open Torus Suction Valve, 2E11-F004A (step 7.4.9.4.6).	At panel 2H11-P601, the following valve is OPEN, red light ONLY illuminated: TORUS SUCTION VLV, 2E11-F004A	
****11.**	Open Torus Suction Valve, 2E11-F004C (step 7.4.9.4.6).	At panel 2H11-P601, the following valve is OPEN, red light ONLY illuminated: TORUS SUCTION VLV, 2E11-F004C	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
5.	Confirm/close Shutdown Cooling Suction Valve, 2E11-F009 (step 7.4.9.4.3).	At panel 2H11-P602, SDC SUCTION VLV, 2E11-F009, is CLOSED, green light ONLY illuminated.	
****6.**	Close Shutdown Cooling Suction Valve, 2E11-F006A (step 7.4.9.4.4).	At panel 2H11-P601, the following valve is CLOSED, green light ONLY illuminated: SHUTDOWN COOLING VLV, 2E11-F006A	
****7.**	Close Shutdown Cooling Suction Valve, 2E11-F006C (step 7.4.9.4.4).	At panel 2H11-P601, the following valve is CLOSED, green light ONLY illuminated: SHUTDOWN COOLING VLV, 2E11-F006C	
8.	Confirm/open Torus Suction Valve, 2E11-F065A (step 7.4.9.4.5).	At panel 2H11-P601, TORUS SUCTION VLV, 2E11-F065A, is OPEN, red light ONLY illuminated.	
9.	Confirm/open Torus Suction Valve, 2E11-F065C (step 7.4.9.4.5).	At panel 2H11-P601, TORUS SUCTION VLV, 2E11-F065C, is OPEN, red light ONLY illuminated.	

NOTE: Valve in Step 6 must be closed, green light ONLY, before valve in Step 10 will open.

Valve in Step 7 must be closed, green light ONLY, before valve in Step 11 will open.

****10.**	Open Torus Suction Valve, 2E11-F004A (step 7.4.9.4.6).	At panel 2H11-P601, the following valve is OPEN, red light ONLY illuminated: TORUS SUCTION VLV, 2E11-F004A	
****11.**	Open Torus Suction Valve, 2E11-F004C (step 7.4.9.4.6).	At panel 2H11-P601, the following valve is OPEN, red light ONLY illuminated: TORUS SUCTION VLV, 2E11-F004C	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

NOTE: The control switch for each pump must be taken to STOP before the RHR pump will start on the loop that was in Shutdown Cooling.

**12.	Start RHR Pump "2A" by placing the control switch to STOP, then to START (step 7.4.9.4.7).	At panel 2H11-P601, control switch for the following pump has been taken to STOP and then to START, red light illuminated: RHR PUMP, 2E11-C002A	
**13.	Start RHR Pumps "2C" by placing the control switch to STOP, then to START (step 7.4.9.4.7).	At panel 2H11-P601, control switch for the following pump has been taken to STOP and then to START, red light illuminated: RHR PUMP, 2E11-C002C	

NOTE: At least one RHR pump must be started to satisfy the critical step in step 12 or step 13.

NOTE: 2E11-F015A has failed to AUTO open. The operator will be required to MANUALLY open 2E11-F015A

**14.	Open 2E11-F015A (step 7.4.9.4.8).	At panel 2H11-P601, RHR INBD INJ VLV, 2E11-F015A, is OPEN, red light ONLY illuminated.	

NOTE: 2E11-F015A will close on a Group II Signal level signal if 2E11-F008 and 2E11-F009 are open and Reactor pressure is less than 138 psig.

NOTE: 2E11-F048A has failed to AUTO open. The operator will be required to MANUALLY open 2E11-F048A

**15.	Open Heat Exchanger Bypass Valve, 2E11-F048A (step 7.4.9.4.9).	At panel 2H11-P601, HX BYPASS VLV, 2E11-F048A, is OPEN, red light illuminated.	

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
16.	Throttle the RHR Outboard Injection Vlv, 2E11-F017A, to obtain 17,000 gpm (step 7.4.9.4.10).	At panel 2H11-P601, the following has been performed: RHR OUTBD INJ VLV, 2E11-F017A, has been THROTTLED, red and green lights illuminated. Operator has OBTAINED approximately 17,000 gpm as indicated on RHR FLOW, 2E11-R603A (accept ±2,000 gpm).	

NOTE: If a LOCA signal is present, the 2E11-F017A is interlocked open and the operator will be unable to throttle flow for five minutes. Due to the stroke times of the 2E11-F006A & 6C along with the 2E11-F004A & 4C, the interlock for 2E11-F017A will be timed out.

PROMPT: **IF** the operator addresses additional steps in the procedure, **INFORM** the operator that another operator will complete the remainder of the procedure.

PROMPT: **IF** the operator addresses shutting down LPCI, as the Shift Supervisor, **INFORM** the operator that shutdown of RHR is not required at this time.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 16.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

FINAL

CR/SIM 5 ALL

Title VERIFY AN AUTOMATIC ISOLATION OF PCIS GROUP II		
uthor: Anthony Ball	Media Number: 2013-301 SIM 5	Time 15 Minutes
Reviewed By N/A		Date N/A
Reviewed by Instructional Technologist or designeed. N/A		Date N/A
Approved By C. M. EDMUND		Date 08/16/2013

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	2013-301 SIM 5

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
00	06/28/95	Initial development	RAB	SMC
01	06/17/96	Format change, modify time allowance	RAB	RSG
02	10/07/97	Revised based on annual exam comments & changed valves that failed.	SCB	DHG
03	10/23/97	Fixed some typographical errors.	SCB	DHG
04	03/02/99	Revised due to new simulator computer.	SCB	DHG
05	02/04/00	Format modification, correct simulator setup	RAB	DHG
06	11/02/00	Include objective number	RAB	DHG
07	12/27/01	Added valve not referenced in JPM	DNM	DHG
08	03/07/02	Include initial operator statement	RAB	RAB
09	03/08/05	Update procedure numbers, operator applicability and Simulator IC number	TFP	RAB
10	06/02/05	Revised Initial License statement for successful completion	RAB	RAB
11	04/07/06	Remove Response Cues	RAB	RAB
11.1	10/17/11	Reviewed JPM against current procedure. Added pass / fail criteria. Added "CLOSED" to 2G11-F020, 2D11-F071, 2P33-F605, 2D11-F072 descriptions. Deleted "CLOSED" from all valves that failed to close. Added "These valves can also be checked using the Isolation Valve Display on 2H11-P601" to the prompt dealing with verifying 2E11-F079A/B and 2E11-F080A/B on panels 2H21-P018 and 2H21-P021.	MMG	ALS
11.2	08/16/13	Revised to match procedure and retitled for ILT-8 NRC Exam. Once exam is complete will be retitled back to LR-JP-13.46.	ARB	CME

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors
11.1	MMG

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**VERIFY AN AUTOMATIC ISOLATION OF PCIS GROUP II**
JPM NUMBER:	**2013-301 SIM 5**
TASK STANDARD:	The task shall be completed when the operator has verified Group II isolation per 34AB-C71-001-2 and isolated those valves that have failed to close.
TASK NUMBER:	013.046
OBJECTIVE NUMBER:	013.046.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.57

SRO Not Available

K/A CATALOG NUMBER: 223002A302

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.50

SRO 3.50

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 2**
	34AB-C71-001-2

REQUIRED MATERIALS:	**Unit 2**
	34AB-C71-001-2 (current version)

APPROXIMATE COMPLETION TIME: **15** Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **100% RTP** and leave in **FREEZE**.

2. **INSERT** the following **MALFUNCTIONS:**

MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME
mf70014376	Ann Fail - PCIS INBOARD H2O2/FPM SYS OVERRIDE			00000
mf70024414	Ann Fail - PCIS OUTBOARD H2O2/FPM SYS OVERRIDE			00000

3. **INSERT** the following **REMOTE FUNCTIONS:**

REM #	DESCRIPTION	STATUS
rfP33237	H2 O2 Analyzer A	OFF
rfP33238	H2 O2 Analyzer B	OFF

4. **INSERT** the following **ORS OVERRIDES:**

TAG #	P/L	DESCRIPTION	STATUS	ACT. TIME
diP33-S16	P	H2O2 Analyzer Isol LOCA Override	BYPASS	00000
diP33-S17	P	H2O2 Analyzer Isol LOCA Override	BYPASS	00000

5. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Perform RC-1, RC-2, and TC-1. Ensure that RWL drops below +3 inches before recovering.
   B. Restore RWL to the normal level band and stabilize the plant.

6. **PLACE** the Simulator in **FREEZE** until the INITIATING CUE is given.

7. **ESTIMATED** Simulator **SETUP TIME:** **20 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. The Reactor has scrammed.
2. RWL dropped to approximately -10 inches before the operators restored it to the normal level band.

INITIATING CUES:

Verify Group II Isolations.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator obtains the procedure needed to perform the task.	Operator has obtained procedure 34AB-C71-001-2 OR may use Group Isolation placard.	

NOTE: It is the intent of the JPM that the operator verifies Group II isolations and determines which valves have failed to isolate. The action to close the unisolated valves is necessary to complete the critical portion of the step. **Steps 2 through 13 may be performed in any order.**

NOTE: In the following steps, the parts of the Standard marked with "" are the critical portions of that step.**

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
2.	Operator confirms or performs the following automatic actions (Attachment. 1 step 2.2): 2G11-F003, CLOSED, 2G11-F019, CLOSED, 2E11-F040, CLOSED, 2T48-F118B, CLOSED, 2T48-F309, CLOSED, 2T48-F307, CLOSED.	At panel 2H11-P602, the operator has CONFIRMED OR PERFORMED the following: 2G11-F003, FLOOR DRAIN VLV, CLOSED, green light illuminated. 2G11-F019, EQUIP DRAIN VLV, green light illuminated. 2E11-F040, RHR TO RADWASTE VLV, CLOSED, green light illuminated. 2T48-F118B, N_2 MAKEUP TO TORUS VLV, CLOSED, green light illuminated. 2T48-F309, TORUS AIR PURGE VLV, CLOSED, green light illuminated. 2T48-F307, DRWL AIR PURGE VLV, CLOSED, green light illuminated.	
3.	Operator confirms the following automatic actions (Attachment. 1 step 2.2): 2T48-F341, CLOSED, 2T48-F339, CLOSED, 2T48-F118A, CLOSED, 2T48-F318, CLOSED, 2T48-F319, CLOSED.	At panel 2H11-P602, the operator has CONFIRMED the following: 2T48-F341, DRWL VENT & RELIEF VLV, CLOSED, green light illuminated. 2T48-F339, TORUS VENT & RELIEF VLV, CLOSED, green light illuminated. 2T48-F118A, N_2 MAKEUP TO DRWL VLV, CLOSED, green light illuminated. 2T48-F318, TORUS VENT VLV, CLOSED, green light illuminated. 2T48-F319, DRWL VENT VLV, CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
4.	Operator confirms or performs the following automatic actions (Attachment. 1 step 2.2): 2G11-F004, CLOSED, 2G11-F020, CLOSED, 2E11-F049, CLOSED, 2T48-F324, CLOSED.	At panel 2H11-P601, the operator has CONFIRMED OR PERFORMED the following: 2G11-F004, FLOOR DRAIN VLV, CLOSED, green light illuminated. 2G11-F020, EQUIP DRAIN VLV, CLOSED green light illuminated. 2E11-F049, RHR TO RADWASTE VLV, CLOSED, green light illuminated. 2T48-F324, TORUS AIR PURGE VLV, CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
5.	Operator confirms the following automatic actions (Attachment. 1 step 2.2): 2T48-F308, CLOSED, 2T48-F340, CLOSED, 2T48-F338, CLOSED, 2T48-F104, CLOSED, 2T48-F103, CLOSED, 2T48-F326, CLOSED, 2T48-F320, CLOSED, 2E11-F015A, CLOSED, 2E11-F015B, CLOSED, 2E11-F122B, CLOSED, 2E11-F122A, CLOSED.	At panel 2H11-P601, the operator has CONFIRMED the following: 2T48-F308, DRYWELL AIR PURGE VLV, CLOSED, green light illuminated. 2T48-F340, DRWL VENT & RELIEF VLV, CLOSED, green light illuminated. 2T48-F338, TORUS VENT & RELIEF VLV, CLOSED, green light illuminated. 2T48-F104, NITROGEN MAKEUP VLV, CLOSED, green light illuminated. 2T48-F103, NITROGEN PURGE VLV, CLOSED, green light illuminated. 2T48-F326, TORUS VENT VLV, CLOSED, green light illuminated. 2T48-F320, DRYWELL VENT VLV, CLOSED, green light illuminated. 2E11-F015A, RHR INJECTION VALVE, CLOSED, green light illuminated. 2E11-F015B, RHR INJECTION VALVE, CLOSED, green light illuminated. 2E11-F122B, TESTABLE CHECK F050B BYPASS VLV, CLOSED, green light illuminated. 2E11-F122A, TESTABLE CHECK F050A BYPASS VLV, CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**6.	Operator confirms or performs the following automatic actions: 2D11-F051, CLOSED, 2D11-F050, CLOSED, 2E41-F122, CLOSED, 2B21-F111, CLOSED, 2P70-F002, CLOSED, **2P33-F002, CLOSED, **2P33-F007, CLOSED, **2P33-F004, CLOSED, **2P33-F003, CLOSED, **2P33-F005, CLOSED.	At panel 2H11-P700, the operator has CONFIRMED the following: 2D11-F051, PRI CNMT FIS PROD MON INBD ISOL, CLOSED, green light illuminated. 2D11-F050, PRI CNMT FIS PROD MON INBD ISOL, CLOSED, green light illuminated. 2E41-F122, POST ACC RX COOL/CNMT ATMOS SMPLG INBD ISOL, CLOSED, green light illuminated. 2B21-F111, POST ACC RX COOL/CNMT ATMOS SMPLG INBD ISOL, CLOSED, green light illuminated. 2P70-F002, DRWL PNEU INBD SUCTION ISOL, CLOSED, green light illuminated. **2P33-F002, PRI CNMT ATMOS H2O2 ANLY INBD ISOL CH B, switch taken to CLOSE, green light illuminated. **2P33-F007, PRI CNMT ATMOS H2O2 ANLY INBD ISOL CH A switch to CLOSE, green light illuminated. **2P33-F004, PRI CNMT ATMOS H2O2 ANLY A RTN LINE INBD ISOL, switch taken to CLOSE, green light illuminated. **2P33-F003, PRI CNMT ATMOS H2O2 ANLY INBD ISOL CH A, CLOSED, green light illuminated. **2P33-F005, PRI CNMT ATMOS H2O2 ANLY INBD ISOL CH B RETURN LINE, switch taken to CLOSE green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**7.	Operator confirms or performs the following automatic actions: 2D11-F071, CLOSED, **2P33-F006, CLOSED, 2G51-F011, CLOSED, 2G51-F017, CLOSED, 2D11-F052, CLOSED, 2D11-F053, CLOSED, 2B21-F112, CLOSED, 2E41-F121, CLOSED.	At panel 2H11-P700, the operator has CONFIRMED OR PERFORMED the following: 2D11-F071, PRI CNMT ATMOS FIS PROD MON SAMPLE LINE ISOL, CLOSED, green light illuminated. **2P33-F006, PRI CNMT ATMOS H2O2 ANLY INBD ISOL CH B, CLOSED, green light illuminated. 2G51-F011, TORUS WATER CLEANUP INBD ISOL, CLOSED, green light illuminated. 2G51-F017, TORUS WATER MAKEUP OUTBD ISOL, CLOSED, green light illuminated. 2D11-F052, PRI CNMT FIS PROD MON OUTBD ISOL, CLOSED, green light illuminated. 2D11-F053, PRI CNMT FIS PROD MON OUTBD ISOL, CLOSED, green light illuminated. 2B21-F112, POST ACC RX COOL/CNMT ATMOS SMPLG OUTBD ISOL, CLOSED, green light illuminated. 2E41-F121, POST ACC RX COOL/CNMT ATMOS SMPLG OUTBD ISOL, CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**8.	Operator confirms or performs the following automatic actions: **2P33-F015, CLOSED, **2P33-F010, CLOSED, 2P70-F003, CLOSED, **2P33-F013, CLOSED, **2P33-F011, CLOSED, **2P33-F012, CLOSED 2P33-F605, CLOSED, 2D11-F072, CLOSED.	At panel 2H11-P700, the operator has CONFIRMED OR PERFORMED the following: **2P33-F015, PRI CNMT ATMOS H2O2 ANLY OUTBD ISOL CH A, switch to CLOSE, green light illuminated. **2P33-F010, PRI CNMT ATMOS H2O2 ANLY OUTBD ISOL CH B, switch to CLOSE, green light illuminated. 2P70-F003, DRWL PNEU OUTBD SUCTION ISOL, CLOSED, green light illuminated. **2P33-F013, PRI CNMT ATMOS H2O2 ANLY OUTBD ISOL CH B RETURN LINE, switch to CLOSE, green light illuminated. **2P33-F011, PRI CNMT ATMOS H2O2 ANLY OUTBD ISOL CH A, CLOSED, green light illuminated. **2P33-F012, H2O2 ANLY CH A RTN LN OUTBD ISOL, switch to CLOSE, green light illuminated. 2P33-F605, O_2 Analyzer Isol Valve, CLOSED, green light illuminated 2D11-F072, PRI CNMT ATMOS H2O2 ANLY FIS PROD MON RTN LN ISOL, CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**9.	Operator confirms or performs the following automatic actions: **2P33-F014, CLOSED, 2G51-F013, CLOSED, 2G51-F012, CLOSED.	At panel 2H11-P700, the operator has CONFIRMED the following: **2P33-F014, PRI CNMT ATMOS H2O2 ANLY OUTBD ISOL CH B, CLOSED, green light illuminated. 2G51-F013, TORUS WATER MAKEUP INBD ISOL, CLOSED, green light illuminated. 2G51-F012, TORUS DRN/PURIF TORUS WATER CLEANUP OUTBD ISOL, CLOSED, green light illuminated.	
10.	Operator confirms that 2C51-J004A-D are CLOSED	At panel 2H11-P607, the operator has CONFIRMED that 2C51-J004A-D, TIP BALL VLVS, CLOSED, green light illuminated.	
11.	Operator confirms the following automatic actions: 2T48-F334A, CLOSED, 2T48-F335A, CLOSED, 2T48-F332A, CLOSED, 2T48-F333A, CLOSED.	At panel 2H11-P657, the operator has CONFIRMED the following: 2T48-F334A, CAD A DRYWELL VENT ISOL VLV, CLOSED, green light illuminated. 2T48-F335A, CAD A DRYWELL VENT ISOL VLV, CLOSED, green light illuminated. 2T48-F332A, CAD A TORUS VENT ISOL VLV, CLOSED, green light illuminated. 2T48-F333A, CAD A TORUS VENT ISOL VLV, CLOSED, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
12.	Operator confirms the following automatic actions: 2T48-F209, CLOSED, 2T48-F211, CLOSED.	At panel 2H11-P657, the operator has CONFIRMED the following: 2T48-F209, DRWL TO TORUS DP SYS INBD ISOL, CLOSED, green light illuminated. 2T48-F211, DRWL TO TORUS DP SYS INBD ISOL, CLOSED, green light illuminated.	
13.	Operator confirms the following automatic actions: 2T48-F334B, CLOSED, 2T48-F335B, CLOSED, 2T48-F332B, CLOSED, 2T48-F333B, CLOSED, 2T48-F210, CLOSED, 2T48-F212, CLOSED.	At panel 2H11-P657, the operator has CONFIRMED the following: 2T48-F334B, CAD B DRYWELL VENT ISOL VLV, CLOSED, green light illuminated. 2T48-F335B, CAD B DRYWELL VENT ISOL VLV, CLOSED, green light illuminated. 2T48-F332B, CAD B TORUS VENT ISOL VLV, CLOSED, green light illuminated. 2T48-F333B, CAD B TORUS VENT ISOL VLV, CLOSED, green light illuminated. 2T48-F210, DRWL TO TORUS DP SYS OUTBD ISOL, CLOSED, green light illuminated. 2T48-F212, DRWL TO TORUS DP SYS OUTBD ISOL, CLOSED, green light illuminated.	

PROMPT: **IF** the operator addresses 2E11-F079A/B and 2E11-F080A/B on panels 2H21-P018 and 2H21-P021, **INFORM** the operator that another operator has verified these valves are closed. These valves can also be checked using the Isolation Valve Display on 2H11-P601.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

PROMPT: **IF** the operator addresses resetting the Group Isolation, **INFORM** the operator that it is NOT desired at this time.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- After JPM step #13 is complete.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear
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Operations Training
JPM

FINAL

CR/SIM 6 RO & SRO-I

TITLE		
PERFORM A DIESEL GENERATOR MANUAL START SURVEILLANCE (TRIP FAILURE)		
AUTHOR	**MEDIA NUMBER**	**TIME**
ANTHONY BALL	2013-301 SIM 6	15 Minutes
RECOMMENDED BY	**APPROVED BY**	**DATE**
N/R	C. M. EDMUND	08/16/2013

SOUTHERN COMPANY

SOUTHERN NUCLEAR OPERATING COMPANY
PLANT E. I. HATCH

FORM TITLE: TRAINING MATERIAL REVISION SHEET

Program/Course Code: **OPERATIONS TRAINING** Media Number: **2013-301 SIM 6**

Rev. No.	Date	Reason for Revision	Author's Initials	Supv's Initials
00	10/18/10	Initial development, removed first 31 steps of LR-JP-25034 to time considerations.	ELJ	CME
01	08/16/13	Revised to match procedure and retitled to 2013-301 Sim 6 for ILT-8 NRC Exam. Added Event Triggers to actuate the malfunctions when the D/G kW is increased to ~1600 kW. This JPM will be retitled to **LR-JP-25034A** after NRC Exam.	ARB	CME

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**PERFORM A DIESEL GENERATOR MANUAL START SURVEILLANCE (TRIP FAILURE)**
JPM NUMBER:	2013-301 SIM 6
TASK STANDARD:	The task shall be completed when the Operator has tied the "2A" Diesel Generator to the "2E" 4160 VAC Bus per 34SV-R43-004-2. Then following a failure to auto trip, shutdown the Diesel Generator.
TASK NUMBER:	028.016
OBJECTIVE NUMBER:	028.016.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.22

SRO 2.93

K/A CATALOG NUMBER: 264000A404

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.70

SRO 3.70

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 2**
	34SV-R43-004-2 (current version) 34AR-652-111-2 (current version) 34AR-652-129-2 (current version)

REQUIRED MATERIALS:	**Unit 2**
	34SV-R43-004-2 (current version) 34AR-652-111-2 (current version) 34AR-652-129-2 (current version) Stopwatch

APPROXIMATE COMPLETION TIME: 15 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **SNAP 616** OR to **IC#113.**

2. **INSERT** the following **MALFUNCTIONS:**

Key #	MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME
R43-3	mf65211665	Spur Ann – LUBE OIL PRESS LOW			9999
R43-3	mf65211683	Spur Ann – EMERGENCY ENGINE SHUTDOWN			9999

3. **INSERT** the following **REMOTE FUNCTIONS:**

REM #	DESCRIPTION	STATUS
rfR43294	DG 2A Engine Remote Speed Droop (0 – 100)	50

4. **ACTIVATE THE FOLLOWING EVENT TRIGGERS:**

Trigger #	DESCRIPTION	CONDITIONS	Expert Command
R43-3	Inserts DG 2A oil break alarms	aoR43-A_k-WATTanvToPanel >.33	

4. **Perform all steps of 34SV-R43-004-2, up to and including step 7.2.3.18.**

5. **ESTIMATED** Simulator **SETUP TIME:** **20 Minutes**

NOTE

To monitor Diesel Generator "A" engine speed, governor setting, frequency, perform the following steps at the instructor station.

1. **Click** on any screen, off of any list.

2. **Type** ALT-P.

3. **Select** TABLES.

4. **Select** TABLES (below cancel).

5. **Select** TABLE DIESEL GENERATORS.

6. **Select** OPEN

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. 34SV-R43-004-2, "Diesel Generator 2A Semi-Annual Test" is in progress.
2. All steps of 34SV-R43-004-2, up to and including step 7.2.3.18, have been completed.
3. No other testing or maintenance is in progress.
4. A SO is in the Diesel Building
5. The NPO originally performing this task was called away (personal emergency).

INITIATING CUES:

Continue the Diesel Generator 2A Semi-Annual Test, per 34SV-R43-004-2, at step 7.2.3.19.

IST is NOT being performed.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation"

NOTE To Evaluator: Perform the turn-over for this JPM prior to entering the simulator when possible (i.e. allow the student to review the procedure in the Virtual Simulator or Simulator Assessment Room, etc.), doing this will minimize the time the simulator is NOT being actively used.

START TIME:_____

1.	Operator identifies the procedure needed to perform the task.	Operator has OBTAINED procedure 34SV-R43-004-2.	
2.	Operator identifies the materials that are required.	Operator OBTAINS a stopwatch.	
3.	Operator reviews the procedure's precautions and limitations.	Operator has REVIEWED the precautions and limitations.	

PROMPT: **WHEN** the Operator addresses obtaining permission from the Shift Supervisor, **INFORM** the Operator that permission has been granted.

PROMPT: **IF ASKED** inform the Operator to assume a Pre-Job brief has been performed.

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
4.	Observe the voltage on each phase of 4160V Bus 2E and record the highest voltage (step 7.2.3.19).	At panel 2H11-P652, the Operator OBSERVES the voltage on each phase of 4160V Bus 2E, as indicated on VOLTMETER, 2R43-R904, and RECORDS the highest voltage.	
5.	Using Diesel Generator 2A Voltage Adjust switch, increase diesel output voltage to match the highest phase voltage on 4160V Bus 2E (step 7.2.3.20).	At panel 2H11-P652, the Operator uses Diesel Generator 2A VOLTAGE ADJUST switch, INCREASES diesel output voltage to match the highest phase voltage on 4160V Bus 2E.	
**6.	When the synchroscope indicates 2 minutes to 12 and when the synchroscope lights are at the dimmest point, CLOSE ACB 135530 (step 7.2.3.21).	At panel 2H11-P652, the Operator, when the synchroscope indicates 2 minutes to 12 and when the synchroscope lights are at the dimmest point, CLOSES EMERGENCY SUPPLY ACB 135530, red light illuminated.	

NOTE: **IF** during the performance of the following two steps, the Operator trips the diesel, these steps become critical and the JPM is failed.

7.	Using the Diesel Gen 2A Speed Adjust switch, adjust the load on the diesel to 500 to 1000 kW (step 7.2.3.22).	At panel 2H11-P652, the Operator uses the Diesel Gen 2A SPEED ADJUST switch, ADJUSTS the load on the diesel to 500 to 1000 kW, as indicated on KILOWATT, 2R43-R615A.	
	Using the Diesel Gen 2A Voltage Adjust switch, adjust reactive load to between 500 to 1000 KVAR. (step 7.2.3.23).	At panel 2H11-P652, the Operator uses the Diesel Gen 2A VOLTAGE ADJUST switch, ADJUSTS the reactive load on the diesel to 500 to 1000 KVAR, as indicated on KVAR, 2R43-R616A.	
8.	Gradually increase load to between 1750 and 2000 kW (step 7.2.3.24).	At panel 2H11-P652, the Operator uses the Diesel Gen 2A SPEED ADJUST switch, ADJUSTS the load on the diesel to 1750 and 2000 kW, as indicated on KILOWATT, 2R43-R615A.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

SIMULATOR OPERATOR: **AS** the Operator is increasing the diesel loading to 1750 kW,

ENSURE EVENT TRIGGER R43-3 ACTIVATES MALFUNCTIONS

mf65211665, "Spur Ann – LUBE OIL PRESS LOW."

5 – 10 seconds later, **mf65211683**, "Spur Ann – EMERGENCY ENGINE SHUTDOWN."

PROMPT: **SIMULATOR OPERATOR: IF** the Operator contacts the SO in the Diesel Building, **REPORT** as the **SO:** "An oil line has split and is spewing hot oil and I have left the Diesel Building."

****9.**	Opens the Emergency Supply ACB.	At panel 2H11-P652, the Operator, OPENS EMERGENCY SUPPLY ACB 135530, green light illuminated.	
****10.**	Take the Diesel Gen 2A Start switch to the STOP position.	At panel 2H11-P652, the Operator TAKES the Diesel Gen 2A START switch to the STOP position.	

PROMPT: **ONCE** the Operator has stopped the diesel, **INFORM** the Operator that another Operator will complete the shutdown, contact Maintenance, and place the diesel into Standby configuration.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 10.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

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Operations Training
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FINAL

CR/SIM 7 RO & SRO-I

TITLE		
PERFORM RC-1, ALTERNATE PATH		
AUTHOR	**MEDIA NUMBER**	**TIME**
Anthony Ball	2013-301 SIM 7	10 Minutes
RECOMMENDED BY	**APPROVED BY**	**DATE**
N/R	C. M. EDMUND	08/16/2013

SOUTHERN COMPANY

SOUTHERN NUCLEAR OPERATING COMPANY
PLANT E. I. HATCH

FORM TITLE: TRAINING MATERIAL REVISION SHEET

Program/Course Code: **OPERATIONS TRAINING** Media Number: **2013-301 SIM 7**

Rev. No.	Date	Reason for Revision	Author's Initials	Supv's Initials
00	05/18/09	Initial development	FNF	CME
01	08/16/13	Revised to match procedure and retitled to 2013-301 Sim 7 for ILT-8 NRC Exam. This JPM will be retitled after NRC Exam.	ARB	CME

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**PERFORM RC-1, ALTERNATE PATH**
JPM NUMBER:	2013-301 SIM 7
TASK STANDARD:	The task shall be completed when the operator has completed all the steps of the RC-1 Placard.
TASK NUMBER:	300.046
OBJECTIVE NUMBER:	H-OP001.013.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.0

SRO 4.3

K/A CATALOG NUMBER: 2.4.43, 201001A2.04

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.6, 3.8

SRO 4.6, 3.9

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1 & 2**
	34AB-C71-001-2

REQUIRED MATERIALS:	**Unit 1 & 2**
	34AB-C71-001-2

APPROXIMATE COMPLETION TIME: 10 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **SNAP 617** OR **60% RTP** and leave in **FREEZE**.

2. **INSERT** the following **MALFUNCTIONS:**

Key #	MALF #	TITLE	FINAL VALUE	RAMP RATE	ACT. TIME
ST-0	mfC71_60B	Reactor protection system fails to scram-complete			0000
RB-1	mfC51_14A	APRM A Failure (Inoperative)			9999
RB-1	mfC51_14B	APRM B Failure (Inoperative)			9999

3. **PLACE** the Simulator in **FREEZE** until the **INITIATING CUE** is given.

4. **ESTIMATED** Simulator **SETUP TIME**: 6 minutes

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit Two is operating at 57% RTP.
2. You are the Operator At The Controls (OATC).

INITIATING CUES:

Respond to Plant conditions.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation"

START TIME:_____

PROMPT: **WHEN** the operator assumes the shift, *SIMULATOR OPERATOR*, **DEPRESS RB-1**.

The following alarms will be received:
- REACTOR NEUTRON MONITORING SYS TRIP, (603-109),
- RBM UPSCALE OR INOPERATIVE, (603-202),
- APRM/OPRM TRIP, (603-210),
- ROD OUT BLOCK, (603-238)

1.	Operator identifies APRMs A & B have tripped.	At 2H11-P603, the operator monitors APRM ODAs to identify APRMs A & B have tripped.	

2.	Inserts a manual scram by depressing the scram push buttons.	At 2H11-P603, the operator DEPRESSES at least one scram pushbutton in both A and B channels.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**3.	Places the Mode Switch to SHUTDOWN.	At 2H11-P603, the operator TRANSFERS the Mode Switch to the "SHUTDOWN" position.	
4.	Confirms the BLUE scram lights are illuminated.	At 2H11-P603, the operator OBSERVES the blue scram lights are **NOT** illuminated.	
**5.	ARMS ARI Ch A.	At 2H11-P603, the operator arms ARI Ch A by rotating the pushbutton collar to the ARMED position.	
**6.	ARMS ARI Ch B.	At 2H11-P603, the operator arms ARI Ch B by rotating the pushbutton collar to the ARMED position.	
**7.	Initiates ARI.	At 2H11-P603, the operator depresses both ARI Manual Initiation Ch A AND Ch B pushbuttons simultaneously.	
8.	Confirm ARI INITIATED, (603-304) annunciator has ALARMED	At 2H11-P603, the operator confirms ARI INITIATED, (603-304) annunciator has ALARMED."	
9.	Confirm ALL rods are inserted.	At 2H11-P603, the operator USES Full In Lights, RWM or SPDS to VERIFY "all rods in."	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
10.	Notifies Shift Supervisor of rod position check.	At 2H11-P603, the operator INFORMS the evaluator that ALL rods are inserted.	

PROMPT: **WHEN** the operator notifies the Shift Supervisor that ALL rods are in, **INFORM** that another operator will complete the remaining scram actions.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 10.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

(Indicates critical step)**

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JPM

FINAL

CR/SIM 8 ALL

TITLE		
PLACE THE CONTROL ROOM HVAC SYSTEM IN THE ISOLATION MODE (ALT-PATH 1ST FAN FAILURE)		
AUTHOR	**MEDIA NUMBER**	**TIME**
Anthony Ball	2013-301 SIM-8	21.0 Minutes
RECOMMENDED BY	**APPROVED BY**	**DATE**
N/R	C. M. EDMUND	08/16/2013

SOUTHERN COMPANY

SOUTHERN NUCLEAR OPERATING COMPANY
PLANT E. I. HATCH

FORM TITLE: TRAINING MATERIAL REVISION SHEET

Program/Course Code: **OPERATIONS TRAINING** Media Number: **2013-301 SIM 8**

Rev. No.	Date	Reason for Revision	Author's Initials	Supv's Initials
00	08/16/13	Revised to match procedure and retitled to 2013-301 Sim 8 for ILT-8 NRC Exam. Added 1st C012 fan attempted will fail requiring the other fan to be placed into service. This JPM will be retitled after NRC Exam.	ARB	CME

UNIT 1 (X) UNIT 2 ( )

TASK TITLE:	**PLACE THE CONTROL ROOM HVAC SYSTEM IN THE ISOLATION MODE (ALT-PATH 1ST FAN FAILURE)**
JPM NUMBER:	2013-301 SIM-8
TASK STANDARD:	The task shall be completed when the Control Room Ventilation System has been placed in the Isolation per 34SO-Z41-001-1.
TASK NUMBER:	037.009
OBJECTIVE NUMBER:	037.009.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.21

SRO 2.69

K/A CATALOG NUMBER:

K/A CATALOG JTA IMPORTANCE RATING:

RO

SRO

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	**Unit 1**
	34SO-Z41-001-1 (current version)

REQUIRED MATERIALS:	**Unit 1**
	34SO-Z41-001-1 (current version)

APPROXIMATE COMPLETION TIME: 21.0 Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 1 is operating at 100% power.
2. The Main Control Room Ventilation System has been operating in a Normal Ventilation configuration for several days.
3. Plant Conditions require MCR Ventilation be swapped to Isolation Mode.

INITIATING CUES:

Swap Main Control Room Ventilation to Isolation Mode per 34SO-Z41-001-1, "Control Room Ventilation System."

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. Reference: NMP-TR-111, "On-The-Job Training and Task Performance Evaluation"

START TIME:_____

1.	Operator identifies the procedure needed to perform the task.	Operator has identified the correct procedure as 34SO-Z41-001-1.	
2.	Operator reviews the procedure's precautions and limitations.	Operator has reviewed the precautions and limitations.	
3.	Close Roll Filter Bypass, 1Z41-F015. (step 7.1.3.3.1)	At MCR Door C70, ROLL FILTER BYPASS, 1Z41-F015 control switch is in CLOSE, green light ONLY illuminated.	
****4.**	Close Outside Air Intake Damper, 1Z41-F016. (step 7.1.3.3.2)	At panel 1H11-P657, FILTER INLET control switch, 1Z41-F016, is in CLOSE position, green light ONLY illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**5.	Close Filter Inlet, 1Z41-F013A. (step 7.1.3.3.3)	At panel 1H11-P657, FILTER INLET control switch, 1Z41-F013A, is in CLOSE position, green light ONLY illuminated.	
**6.	Close Filter Inlet, 1Z41-F013B. (step 7.1.3.3.4)	At panel 1H11-P654, FILTER INLET control switch, 1Z41-F013B, is in CLOSE position, green light ONLY illuminated.	

NOTES:

- If the operator starts with the "A" Recirc Fan, C012A, perform steps 7-9, skip 10-12, AND then continue with step 13.
- If the operator starts with the "B" Recirc Fan, C012B, skip steps 7-9 and start with step 10.

7.	Start Recirc Fan, 1Z41-C012A (step 7.1.3.4.)	At panel 1H11-P657 (P654), RECIRC FAN, 1Z41-C012A control switch is in RUN, green light ONLY illuminated.	

NOTE: The operator should note that C012A does NOT start and continue with C012B start.

**8.	Start Recirc Fan, 1Z41-C012B (step 7.1.3.4.)	At panel 1H11-P654, RECIRC FAN, 1Z41-C012B control switch is in RUN, red light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
9.	Confirm the following dampers are open: (step 7.1.3.4.2) 1Z41-F008A 1Z41-F008B 1Z41-F008C 1Z41-F014B	At panel 1H11-P654, the following dampers are OPEN for Fan 1Z41-C012B, red lights ONLY illuminated: 1Z41-F008A, Inlet to UNIT B003A 1Z41-F008B, Inlet to UNIT B003B 1Z41-F008C, Inlet to UNIT B003C 1Z41-F014B, RECIRC INLET	
10.	Start Recirc Fan, 1Z41-C012B (step 7.1.3.4.)	At panel 1H11-P654, RECIRC FAN, 1Z41-C012B control switch is in RUN, green light ONLY illuminated.	

NOTE: The operator should note that C012B does NOT start and continue with C012A start.

**11.	Start Recirc Fan, 1Z41-C012A (step 7.1.3.4.)	At panel 1H11-P657, RECIRC FAN, 1Z41-C012A control switch is in RUN, red light illuminated.	
12.	Confirm the following dampers are open: (step 7.1.3.4.1) 1Z41-F007A 1Z41-F007B 1Z41-F007C 1Z41-F014A	At panel 1H11-P657, the following dampers are OPEN for Fan 1Z41-C012A, red lights ONLY illuminated: 1Z41-F007A, Inlet to UNIT B003A 1Z41-F007B, Inlet to UNIT B003B 1Z41-F007C, Inlet to UNIT B003C 1Z41-F014A, RECIRC INLET	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**13.	Close the following dampers: 1Z41-F012 1Z41-F019 & F020 (step 7.1.3.5)	At panel 1H11-P654, the following dampers are CLOSED, green lights ONLY illuminated: 1Z41-F012, FILTER BYPASS 1Z41-F019 & F020, MEN'S & WOMEN'S RESTROOM VENT ISOL DMPR	
**14.	Close Filter Bypass, 1Z41-F011. (step 7.1.3.6)	At panel 1H11-P657, FILTER BYPASS damper 1Z41-F011 is CLOSED, green light illuminated.	
15.	Confirm Men's Restroom Door is closed. (step 7.1.3.7)	In the Control Room, the Men's Restroom Door is CLOSED.	

NOTE: It is acceptable for the operator to leave the failed C012A/B in either the 'STANDBY', 'AUTO' or 'OFF' position.

16.	Place control switch for Recirc Fan 1Z41-C012B (C012A) in Standby. (step 7.1.3.8)	At panel 1H11-P654 (P657), RECIRC FAN 1Z41-C012B (C012A) control switch is in STANDBY, green light illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

NOTE: The following positions will be dictated by which fan the operator attempted to start first.

NOTE: The operator may NOT perform the following step due to the inoperability of the first attempted C012 fan.

17.	Confirm the following dampers are closed: {step 7.1.3.8.1 (step 7.1.3.8.1)} 1Z41-F008A (F007A) 1Z41-F008B (F007B) 1Z41-F008C (F007C) 1Z41-F014B (F014A)	At panel 1H11-P654 (P657), the following dampers are CLOSED for Fan 1Z41-C012B (C012A), green lights illuminated: 1Z41-F008A (F007A), Inlet to UNIT B003A 1Z41-F008B (F007B, Inlet to UNIT B003B 1Z41-F008C (F007C), Inlet to UNIT B003C 1Z41-F014B (F014A), Recirc Inlet	
18.	PLACE 1Z41-C009, Cable Spreading Room Supply Fan, to OFF. (step 7.1.3.9)	At 1H11-P654, PLACE 1Z41-C009, Cable Spreading Room Supply Fan, to the OFF position.	
19.	PLACE 1Z41-C010, Cable Spreading Room Exhaust Fan, to OFF. (step 7.1.3.10)	At 1H11-P654, PLACE 1Z41-C010, Cable Spreading Room Exhaust Fan, to the OFF position.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
20.	Initiate compensatory action to confirm twice per shift that the temperature in the Cable Spreading Room is less than 105°F. (step 7.1.3.11)	Initiate compensatory action to confirm twice per shift that the temperature in the Cable Spreading Room is less than 105°F. An Engineering Evaluation is required if the temperature reaches 105°F.	

PROMPT: **IF** the operator notifies the Shift Supervisor to initiate compensatory actions, **INFORM** that a System Operator will be monitoring Cable Spreading Room temperatures.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 20.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

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Operations Training
JPM

FINAL

PLANT 1 ALL

Title **VENT THE SCRAM AIR HEADER**		
Author: **Anthony Ball**	**Media Number:** **2013-301 PLANT 1**	**Time** **7.0 Minutes**
Reviewed By **N/A**		**Date** **N/A**
Reviewed by Instructional Technologist or designee. **N/A**		**Date** **N/A**
Approved By **C. M. EDMUND**		**Date** **08/16/2013**

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	2013-301 PLANT 1

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
12	02/27/02	Include initial operator statement	RAB	RAB
13	06/01/05	Deleted "S" from procedure numbers, changed Revision and Rev. numbers to "Current Version," revised Initial License statement for successful completion	BEB RAB	RAB
14	04/06/06	Remove Response Cues	RAB	RAB
15	09/25/09	Added HU steps.	CLN ADY	ALD
15.1	8/11/11	Reviewed JPM against current procedure. Added the following prompt, "**IF** the operator addresses Scram Air Header Pressure, **INDICATE** that the Scram Air Header Pressure is decreasing and that you can hear the air escaping".	MMG	DNM
15.2	08/16/13	This JPM was modified to match procedure and renumbered from LR-JP-10.15 for ILT-8 NRC Exam. After this exam it will be re-titled back to original LR JPM number.	ARB	CME

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**Vent the Scram Air Header**
JPM NUMBER:	**2013-301 PLANT 1**
TASK STANDARD:	The task shall be completed when the operator has successfully vented the scram air header per 31EO-EOP-103.
TASK NUMBER:	010.015
OBJECTIVE NUMBER:	010.015.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.50

SRO 3.65

K/A CATALOG NUMBER: 212000A417

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.10

SRO 4.10

OPERATOR APPLICABILITY: Systems Operator (SO)

NOTE:

IT IS INTENDED FOR THIS TO BE PERFORMED ON **UNIT 2.**
UNIT 1 IS INCLUDED IN CASE WORK IN THE AREA PREVENTS PERFORMANCE ON UNIT 2.

GENERAL REFERENCES:	**Unit 1**	**Unit 2**
	31EO-EOP-103-1 (current version) 31EO-EOP-011-1 (current version)	31EO-EOP-103-2 (current version) 31EO-EOP-011-2 (current version)

REQUIRED MATERIALS:	**Unit 1**	**Unit 2**
	31EO-EOP-103-1 (current revision) Adjustable Wrench	31EO-EOP-103-2 (current revision) Adjustable Wrench

APPROXIMATE COMPLETION TIME: **7.0** Minutes

SIMULATOR SETUP: N/A

UNIT 1

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. A Reactor scram signal has been received and all the control rods did NOT insert to Position 02 and Reactor power is greater than 10%.
2. The blue scram inlet and outlet valve lights are extinguished.
3. 31EO-EOP-011-1 (RCA) is in progress.

INITIATING CUES:

Vent the scram air header per 31EO-EOP-103-1.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator identifies the materials that are required. (pliers)	Operator identifies the required materials and where to obtain.	

NOTE: WHEN the Operator closes 1C11-F095 valve, the handwheel will be turned in the clockwise direction until it will NOT turn any farther.

****2.**	CLOSE 1C11-F095 (step 3.6.1).	At location 130RAR03, 1C11-F095, SCRAM AIR HEADER ISOLATION VALVE is CLOSED.	
****3.**	Remove cap if installed from end of piping downstream of 1C11-R013-TV1 (step 3.6.2).	At location 130RAR03, cap is REMOVED from end of piping downstream of 1C11-R013-TV1.	
4.	Confirm OPEN/OPEN 1C11-R013-IV1 (step 3.6.3).	At location 130RAR03, 1C11-R013-IV1, PRESSURE INSTRUMENTATION ISOLATION VALVE is OPEN.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**5.	OPEN 1C11-R013-TV1 (step 3.6.4).	At location 130RAR03, 1C11-R013-TV1, PRESSURE INSTRUMENTATION VENT VALVE, is OPEN, Scram Air Header pressure decreasing on 1C11-PI-R013.	

PROMPT: **IF** the operator addresses Scram Air Header Pressure, **INDICATE** that the Scram Air Header Pressure is decreasing and that you can hear the air escaping.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- After JPM step #5 is complete.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. A Reactor scram signal has been received and all the control rods did NOT insert to Position 02 and Reactor power is greater than 10%.
2. The blue scram inlet and outlet valve lights are extinguished.
3. 31EO-EOP-011-2 (RCA) is in progress.

INITIATING CUES:

Vent the scram air header per 31EO-EOP-103-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator identifies the materials that are required. (pliers)	Operator identifies the required materials and where to obtain.	

NOTE: WHEN the Operator closes 2C11-F095 valve, the handwheel will be turned in the clockwise direction until it will NOT turn any farther.

****2.**	CLOSE 2C11-F095 (step 3.6.1).	At location 130RAR22, 2C11-F095, SCRAM AIR HEADER ISOLATION VALVE is CLOSED.	
****3.**	REMOVE cap if installed from end of piping downstream of 2C11-R013-TV1 (step 3.6.2).	At location 130RAR22, cap is REMOVED from end of piping downstream of 2C11-R013-TV1.	
4.	Confirm OPEN 2C11-R013-IV1 (step 3.6.3).	At location 130RAR22, 2C11-R013-IV1, PRESSURE INSTRUMENTATION ISOLATION VALVE is OPEN.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**5.	OPEN 2C11-R013-TV1 (step 3.6.4).	At location 130RAR22, 2C11-R013-TV1, PRESSURE INSTRUMENTATION VENT VALVE, is OPEN, Scram Air Header pressure decreasing on 2C11-PI-R013.	

PROMPT: **IF** the operator addresses Scram Air Header Pressure, **INDICATE** that the Scram Air Header Pressure is decreasing and that you can hear the air escaping.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 5.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

FINAL

PLANT 2 RO & SRO-I

Title FROM THE REMOTE SHUTDOWN PANEL, START RHR IN TORUS COOLING		
Author: Anthony Ball	Media Number: 2013-301 PLANT 2	Time 22.0 Minutes
Reviewed By N/A		Date N/A
Reviewed by Instructional Technologist or designee N/A		Date N/A
Approved By C. M. EDMUND		Date 08/16/2013

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	2013-301 PLANT 2

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
11	10/31/00	Include objective number	RAB	DHG
12	02/26/02	Include initial operator statement	RAB	RAB
13	03/17/05	Deleted "S" from procedure numbers, changed Revision and Rev. numbers to "Current Version," changed "Reactor Operator" to "Nuclear Plant Operator," and changed IC #107 for Simulator Setup.	BEB	DHG
14	05/31/05	Revised Initial License statement for successful completion	RAB	RAB
15	04/06/06	Remove Response Cues	RAB	RAB
16	08/07/08	Corrected to match procedure step for confirming open 2E11-F003B.	GHC	BKW
16.1	8/11/11	Reviewed JPM against current procedure. Added pass / fail criteria.	MMG	DNM
16.2	08/16/13	This JPM was modified to match procedure and renumbered from LR-JP-07.20 for ILT-8 NRC Exam. After this exam it will be re-titled back to original LR JPM number.	ARB	CME

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 (X) UNIT 2 (X)

TASK TITLE:	**FROM THE REMOTE SHUTDOWN PANEL, START RHR IN TORUS COOLING**
JPM NUMBER:	**2013-301 PLANT 2**
TASK STANDARD:	The task shall be completed when the operator has successfully placed the "B" loop of RHR into Torus Cooling from the Remote Shutdown Panel per 31RS-OPS-001.
TASK NUMBER:	007.020
OBJECTIVE NUMBER:	007.020.O

PLANT HATCH JTA IMPORTANCE RATING:

RO 3.40

SRO 3.80

K/A CATALOG NUMBER: 295016G006

K/A CATALOG JTA IMPORTANCE RATING:

RO 4.10

SRO 4.10

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	Unit 1	Unit 2
	N/A	31RS-OPS-001-2 (current version)

REQUIRED MATERIALS:	Unit 1	Unit 2
	N/A	31RS-OPS-001-2 (current version) Key for Remote Shutdown Panel (if performed in plant)

APPROXIMATE COMPLETION TIME: 22.0 Minutes

SIMULATOR SETUP: REFER TO SIMULATOR SETUP SHEET ON THE FOLLOWING PAGE IF PERFORMED IN SIMULATOR.

SIMULATOR SETUP

Simulator Initial Conditions:

1. **RESET** the Simulator to **SNAP 622 OR IC#107 (7%, Xfer to Run)** and leave in **FREEZE.**

2. Take the Simulator **OUT OF FREEZE** and **PERFORM** the following **MANIPULATIONS:**

   A. Place the Mode Switch to SHUTDOWN.
   B. Perform RC-1, RC-2, TC-1, and reset the scram.
   C. Maintain RWL between 32 to 42 inches.
   D. Place **ALL** the Remote Shutdown Panel Transfer switches to EMERG.
   E. Place RHRSW Pump "2B" in operation at <4400 gpm as indicated on 2H21-P173 indicator, 2E11-R071.

3. **PLACE** the Simulator in **FREEZE** until the crew assumes the shift.

4. **ESTIMATED** Simulator **SETUP TIME:** **20 Minutes**

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. An event has occurred which required the control room to be evacuated.
2. RHR is in Standby.
3. Normal AC power is available.
4. ALL RSDP transfer switches are in the EMERG position.
5. RHRSW Pump "2B" is running at <4400 gpm.
6. Torus temperature is 97°F.
7. 31RS-OPS-001-2 is in progress.

INITIATING CUES:

Place RHR Loop "2B," in Torus Cooling at the Remote Shutdown Panel per 31RS-OPS-001-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

1.	Operator identifies the materials that are required.	Operator identifies the required materials and where to obtain them.	

PROMPT: **WHEN** the operator addresses transfer switch positions, **INDICATE** for the operator that **ALL** transfer switches are in the EMERG position.

PROMPT: **IF** the operator addresses RHRSW operation, as the Shift Supervisor, **INFORM** the operator that RHRSW Pump "2B" is running with 4400 gpm flow.

PROMPT: **IF** the operator addresses Torus temperature, **INDICATE** for the operator that Torus temperature is <100°F.

2.	Confirm CLOSED/CLOSE 2E11-F047B (step 3.0).	At panel 2C82-P001, the following valve is CLOSED, green light ONLY illuminated: HX INLET VLV, 2E11-F047B	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
3.	Confirm OPEN/OPEN 2E11-F003B (step 3.0).	At panel 2C82-P001, HX OUTLET VLV, 2E11-F003B is OPEN, red light ONLY illuminated:	
4.	Confirm 2E11-F048B is OPEN (step 4.0).	At panel 2C82-P001, HX BYPASS VLV, 2E11-F048B, is OPEN, red light ONLY illuminated.	
**5.	OPEN 2E11-F028B (step 5.0).	At panel 2C82-P001, RHR TORUS SPRAY OR TEST VLV, 2E11-F028B, is OPEN, red light ONLY illuminated.	
6.	Confirm 2E11-F007B OPEN (step 6.0).	At panel 2C82-P001, MIN FLOW VLV, 2E11-F007B, is OPEN, red light ONLY illuminated.	
**7.	START RHR Pump 2E11-C002B (step 7.0).	At panel 2C82-P001, RHR PUMP, 2E11-C002B, is RUNNING, red light illuminated.	
**8.	Throttle OPEN 2E11-F024B and establish flow rate of less than or equal to 7700 gpm (step 8.0).	At panel 2C82-P001, the following has been performed: FULL FLOW TEST LINE VLV, 2E11-F024B, is THROTTLED OPEN, red and green lights illuminated. RHR FLOW, 2C82-R004, indicates $\leq$ 7700 gpm. (accept 6700-7700 gpm)	
9.	Confirm valve 2E11-F007B CLOSES (step 8.1).	At panel 2C82-P001, MIN FLOW VLV, 2E11-F007B, is CLOSED, green light ONLY illuminated.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**10.	Confirm OPEN/OPEN 2E11-F047B and 2E11-F003B (step 9.0).	At panel 2C82-P001, the following valves are OPEN, red light ONLY illuminated: HX INLET VLV, 2E11-F047B HX OUTLET VLV, 2E11-F003B	
**11.	CLOSE 2E11-F048B (step 10.0).	At panel 2C82-P001, HX BYPASS VLV, 2E11-F048B, is CLOSED, green light ONLY illuminated.	

PROMPT: **IF** the operator addresses RHRSW to RHR dP, as a System Operator, **INFORM** the operator that RHRSW to RHR dP is >20 psid.

PROMPT: **IF** the operator addresses Torus Spray, as the Shift Supervisor, **INFORM** the operator that Torus Spray is NOT required at this time.

PROMPT: **IF** the operator addresses securing Torus Cooling, as the Shift Supervisor, **INFORM** the operator that this is NOT desired at this time.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 11.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**

Southern Nuclear Company

Operations Training
JPM

FINAL

PLANT 3 ALL

Title CROSSTIE INSTRUMENT BUS "B" TO INSTRUMENT BUS "A"		
Author: Anthony Ball	Media Number: 2013-301 PLANT 3	Time 15.0 Minutes
Reviewed By N/A		Date N/A
Reviewed by Instructional Technologist or designee N/A		Date N/A
Approved By C. M. EDMUND		Date 08/16/2013

SOUTHERN COMPANY

Course Number	Program Name	Media Number
	OPERATIONS TRAINING	2013-301 PLANT 3

Rev. No.	Date	Reason for Revisions	Author's Initials	Sup's Initials
01	08/16/93	General revision	RAB	RSG
02	08/05/96	Format change	RAB	DHG
03	03/09/00	Format modification, change title, change time allowance based on running average, remove prompt dealing with LPCI load center	RAB	DHG
04	11/03/00	Include objective number	RAB	DHG
05	03/19/02	Include initial operator statement	RAB	RAB
06	06/21/05	Revised Initial License statement for successful completion	RAB	RAB
07	05/05/06	Remove Response Cues	RAB	RAB
07.1	10/17/11	Reviewed JPM against current procedure. Added pass / fail criteria. Added Fundamental question to new Attachment 1. Deleted "student indentifies correct procedure", as this was given information.	MMG	ALS
7.2	08/16/13	This JPM was modified to match procedure and renumbered from LR-JP-20019 for ILT-8 NRC Exam. After this exam it will be re-titled back to original LR JPM number.	ARB	CME

Line Contributors

The following individuals contributed to the development of this lesson plan.

Rev. No.	List of Contributors

UNIT 1 ( ) UNIT 2 (X)

TASK TITLE:	**CROSSTIE INSTRUMENT BUS "B" TO INSTRUMENT BUS "A"**
JPM NUMBER:	**2013-301 PLANT 3**
TASK STANDARD:	The task shall be completed when Instrument Bus "B" is crosstied to Instrument Bus "A" per 34AB-R25-002.
TASK NUMBER:	200.019
OBJECTIVE NUMBER:	200.019.A

PLANT HATCH JTA IMPORTANCE RATING:

RO 4.00

SRO 3.64

K/A CATALOG NUMBER: 262001A207

K/A CATALOG JTA IMPORTANCE RATING:

RO 3.00

SRO 3.20

OPERATOR APPLICABILITY: Nuclear Plant Operator (NPO)

GENERAL REFERENCES:	Unit 1	Unit 2
		34AB-R25-002-2 (current version)

REQUIRED MATERIALS:	Unit 1	Unit 2
		34AB-R25-002-2 (current version) Unit 2 RPS MG Set Room CAT 60 key

APPROXIMATE COMPLETION TIME: 15.0 Minutes

SIMULATOR SETUP: N/A

UNIT 2

READ TO THE OPERATOR

INITIAL CONDITIONS:

1. Unit 2 is operating at 60% power.
2. Essential Cabinet "2B," 2R25-S037, is de-energized.
3. Instrument Bus "2B," 2R25-S065, is de-energized due to the loss of Essential Cabinet "2B," 2R25-S037.
4. 34AB-R24-001-2, "Loss of Essential AC Distribution Buses," is in progress.
5. Essential Cabinet "2B," 2R25-S037, cannot be energized due to a faulted Feeder Breaker from 600 VAC Bus "2D," 2R23-S004.
6. 34AB-R25-002-2, "Loss of Instrument Buses," is in progress.

INITIATING CUES:

Energize Instrument Bus "2B," 2R25-S065, from Instrument Bus "2A," 2R25-S064, per 34AB-R25-002-2.

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)

For **INITIAL** Operator Programs:
For OJT/OJE; ALL PROCEDURE STEPS must be completed for Satisfactory Performance.
For License Examinations; ALL CRITICAL STEPS must be completed for Satisfactory Performance.

	IF	THEN
PASS	❑ Human performance tools, safety, PPE met (1), **AND** ❑ For initial trg **all** steps completed correctly OR ❑ For continuing trg, **critical** steps (if used) completed correctly	❑ Mark the JPM as a **PASS**
FAIL	❑ Above standards not met	❑ Mark the JPM as a **FAIL**

(1) The standard for human performance tools, safety, PPE, and other pertinent expectations is considered met provided any deviations are minor and have little or no actual or potential consequence. Errors may be self-corrected provided the action would not have resulted in significant actual or potential consequences. (AG-TRN-01-0685 Section 6.5.3 provides examples)

START TIME:_____

**1.	At Essential Cabinet "2B," 2R25-S037, OPEN Breaker 28 (step 4.5.1.1).	At Essential Cabinet "2B," 2R25-S037, Breaker 28, 120/208V CAB 2C INSTR BUS 2B, is OPEN. Breaker switch is in the OFF position.	
**2.	In the Unit 2 RPS M/G Set Room, at Instrument Bus "2B," 2R25-S065, CLOSE Breaker 40 (step 4.5.1.2).	At Instrument Bus "2B," 2R25-S065, Breaker 40, CROSSTIE TO INSTR BUS 2A, is CLOSED. Breaker switch is in the ON position.	
**3.	At Instrument Bus "2A," 2R25-S064, CLOSE Breaker 39 (step 4.5.1.3).	At Instrument Bus "2A," 2R25-S064, Breaker 39, CROSSTIE TO INSTR BUS 2B, is CLOSED. Breaker is in the ON position.	

(Indicates critical step)**

STEP #	PERFORMANCE STEP	STANDARD	SAT/UNSAT (COMMENTS)
**4.	At Essential Cabinet "2B," OPEN switch 2R26-M004 and REMOVE both keys (step 4.5.1.4).	At Essential Cabinet "2B," switch 2R26-M004 is OPEN and both keys are removed.	
**5.	In the Unit 2 RPS MG Set Room, INSERT one key in 2R26-M003 and CLOSE the switch (step 4.5.1.5).	In the Unit 2 RPS MG Set Room, 2R26-M003 is CLOSED.	
**6.	In the Unit 2 RPS MG Set Room, INSERT one key in 2R26-M005 and CLOSE the switch (step 4.5.1.6).	In the Unit 2 RPS MG Set Room, 2R26-M005 is CLOSED.	

PROMPT: **IF** the operator addresses restoring any of the loads of the Instrument Bus, as the Shift Supervisor, **INFORM** the operator that another operator will perform the load restoration.

END TIME:_____

NOTE: The terminating cue shall be given to the operator when:

- When the operator completes step 6.
- With NO reasonable progress, the operator exceeds double the allotted time.
- Operator states the task is complete.

TERMINATING CUE: We will stop here.

(Indicates critical step)**